

The Chronology of Banana as a Source of Provitamin A Carotenoids and its Potential Contribution to Alleviation of Vitamin A Deficiency Among Vulnerable Population Groups

Beatrice Ekesa, Gina Kennedy, Inge van den Bergh
Nutrition & Marketing Diversity Programme, Bioversity International, Kampala, Uganda
✉ b.ekesa@cgiar.org

Although bananas are reported to have been first domesticated in Southeast Asia and the South Pacific around 8,000 to 5,000 BCE, it is probable that bananas arrived in India, Indonesia, Australia, and Malaysia, within the first two millennia after domestication and may have been grown in eastern Africa as early as 3000 BCE, and in Madagascar by 1000 BCE. Banana production and consumption in the ancient and early modern world was mostly geared towards small-scale operations for local consumption. Banana's major use was likely as either the main starch consumed, or, given its non-seasonal nature, as an important buffer crop between other staple harvests. Although bananas are a major part of the diet in Sub-Saharan Africa and Southeast Asia, it was long thought as a poor source of vitamin A. The high prevalence of vitamin A deficiencies (VAD) in the Pacific islands triggered scientists like Louis Englberger to begin exploring vitamin A levels in native foods like banana, giant swamp taro, and breadfruit. It was only in early 2000s that interest in vitamin A-rich bananas took off when research by findings by Louis Englberger and collaborators revealed that some orange-fleshed banana cultivars indigenous to the Pacific region have high levels of pro Vitamin A carotenoids (pVACs). Following this, a pulp-color based prescreening of the >1000 accessions at the Bioversity International Transit Centre was carried out and more than 400 accessions have undergone further laboratory screening for pVACs. From the 400, 15 accessions mainly from the Pacific and with >88ug/100g RAE have been undergoing agronomic, acceptability and sensory evaluation within banana-dependent regions of Eastern Africa. Findings indicate that about 40% of the first PVAC varieties selected have potential of integration and viability within local farming and diet systems in East Africa. As the process of integrating the most preferred accessions within local farming and diets goes on, we hope that in the next 3-5 years millions of farmers from VAD prone areas will be growing, consuming and marketing several Vitamin-A rich bananas, with related improvements to their health and livelihoods.